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TITLE : SURFACE COATED SUPERHARD ALLOY

ABSTRACT : PURPOSE: To improve the machinability and abrasion resistance of a titled alloy by forming a coated layer of a solid solution oxy compound of an Hf compound and a Ti compound on the surface of base metal consisting of a superhard alloy, and forming an oxide coating layer thereon.

CONSTITUTION: An Hf iodide, a Ti iodide and a suitable reacting gas are introduced into the surface of base metal consisting of a superhard alloy such as superhard alloy or cemet. Thereby, a coating layer consisting of a solid solution oxy compound of Hf and Ti, for example (Hf.Ti)C.O, (Hf.Ti)N.O or (Hf.Ti)C.N.O is formed on the surface of the base material. Thence, an iodide or chloride of Al or Zr and a reacting gas ( $\text{CO}_2 + \text{H}_2$ ) are introduced to cause thermal decomposition of Al or Zr compound, whereby an oxide coating layer consisting of  $\text{Al}_2\text{O}_3$  or  $\text{ZrO}_2$  is formed thereon.

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